

Ethical and Legal Implications of AI

Perspectives from Leuven.AI – The KU Leuven Institute for Artificial Intelligence

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Leuven.AI



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Liability for damage caused by AI

Jan De Bruyne, Research Expert @ CITIP, KU Leuven

- Many EU initiatives
- AI tort law dilemma
 - importance national law (cf. interaction)
- Traditional tort/product liability concepts challenged by AI
 - ✓ assessing 'negligence' producer or operator
 - ✓ e.g. notion product, defect under PLD

Liability for damage caused by AI

Jan De Bruyne, Research Expert @ CITIP, KU Leuven

- Some food for thought
 - ✓ specific criteria and examples
 - ✓ burden or proof victims: more research needed (cf. national law alternatives)
 - ✓ importance technical knowledge judges
 - ✓ how ensuring uniformity?
 - ✓ certification of AI-systems

AI and Copyright

What is the role of copyright law in fostering a fair open and accountable approach to data-driven AI?

Thomas Margoni

Research Professor of Intellectual Property Law

Centre for IT & IP Law (CiTiP), Faculty of Law, KU Leuven

The role of EU © in training data

AI (i.e. data-driven AI such as machine learning that needs to be “trained” on large amount of data to “learn” new tasks)

- Training data are not necessarily “data” from a legal/copyright point of view
 - They could be mere facts and data which are or should be unprotected
 - (But see new Arts. 3&4 CDSM).
 - Works of authorship that are traditionally protected by copyright
 - (literary works, movies, most tweets around 11 consecutive words or more, etc)
 - Other subject matter that are protected by related rights
 - (sound recordings, non original photographs)
 - Databases with substantial investment even when not original
 - (SGDR in this case protection extends to contained data).

The role of EU © in training data

What does this mean for AI?

- Different types of “data” have different access conditions
 - This basically means that they have different “costs” calculated both as a monetary cost, but also as other forms of transactive costs
 - (identifying whether data are protected, whom they belong to, under which conditions, different levels of “friction”)
 - Consequently, different AI developers (with different budget capacities and different risk propension) may decide to use different categories of data to develop their AI *not* on the basis of inner characteristics of data (quality, completeness, accuracy, non-bias), but based on other considerations (legal, economic, risk, etc).

The role of EU © in training data

What does this mean for EU AI?

- This situation strongly favors incumbents (usually not EU) that possess large databases of data (videos, posts, etc) and can use them to train their own AI
- SMEs, start-ups and nonprofit usually lack financial and structural organization to clear rights on individual basis for massive amounts of data
- Need to negotiate licenses often on individual basis (not CMOs yet)
- All this discriminates between EU and non-EU firms. Outside the EU training data for ML purposes is generally considered lawful.

What should be the role of copyright?

Favor an open accountable and transparent AI environment

- Latest legislative developments (e.g. Arts. 3&4) failed to deliver
- Some hope in national implementations of CSDM (esp. Art. 4 opt-out)
- Other approaches (e.g. PSI/Open Data Directive) seem more functional to open transparent AI
- Rethink the classification of computational uses in copyright law both from a theoretical and AI governance point of view



AI and patent law. What about openness?



Prof. dr. Geertrui Van Overwalle, CiTiP

Patentable? Computer implemented inventions

- Computer programs "as such" are excluded from patent protection in Europe [[Article 52\(2\)\(c\)](#) European Patent Convention (EPC)]. AI is based on computational models and mathematical algorithms which are *per se* of an abstract nature.
- However, inventions involving software are not excluded from patentability as long as they have a technical character. Likewise, patents may be granted when AI leaves the abstract realm by applying it to solve a technical problem in a field of technology.
- Inventions involving AI are considered 'computer-implemented inventions': "inventions which involve computers, computer networks or other programmable apparatus, whereby at least one feature is realised by means of a program" [Guidelines for Examination in the European Patent Office, F-IV, 3.9]

Who then is the inventor?

From the perspective of inventorship, three categories of AI inventions may be identified

- *human-made* inventions using AI for the verification of the outcome
 - *human-related* inventions, where a human identifies a problem and uses AI to find a solution
 - *AI-made* inventions, in which AI identifies a problem and proposes a solution without human intervention. AI which could invent independently of human direction, instruction/oversight.
- AI is used as a tool for human inventors, augmenting their capabilities
 - “A matter of undefined future and thus science fiction” (EPO)

Bibliographic data: EP3564144 (A1) — 2019-11-06

FOOD CONTAINER

Inventor(s):

Applicant(s): THALER STEPHEN L [US] ± (Thaler, Stephen L)

Classification: - international: B65D1/02; B65D13/02; B65D21/02; B65D6/00; B65D6/02; B65D8/00
 - cooperative: B65D1/0223 (EP); B65D11/02 (EP); B65D11/10 (EP); B65D13/02 (EP); B65D21/0204 (EP); B65D21/0205 (EP); B65D7/02 (EP)

Application number: EP20180275163 20181017 [Global Dossier](#)

Priority number(s): EP20180275163 20181017

Also published as: [DE102019128120 \(A1\)](#).

Abstract of EP3564144 (A1)

A container (10) for use, for example, for beverages, has a wall (12) with an external surface (14) and an internal wall (16) of substantially uniform thickness. The wall (12) has a fractal profile which provides a series of fractal elements (18-28) in the profile of the wall and in which a pit (40) as seen from one of the exterior or interior surfaces (12, 14) forms a bulge (42) on the other of the exterior or interior surfaces (12, 14). The profile enables multiple containers to be coupled together by inter-engagement of pits and bulges on corresponding ones of the containers. The profile also improves grip, as well as heat transfer into and out of the container.

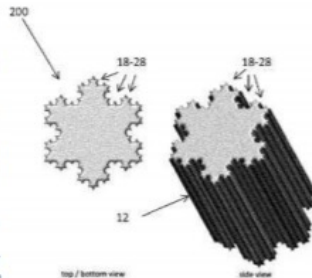


Fig. 6

Bibliographic data: EP3563896 (A1) — 2019-11-06

DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION

Inventor(s):

Applicant(s): THALER STEPHEN L [US] ± (Thaler, Stephen L)

Classification: - international: A61M16/00; A61M21/00
 - cooperative: A61M16/024 (EP); A61M21/00 (EP); H05B47/165 (EP); A61M2021/0044 (EP)

Application number: EP20180275174 20181107 [Global Dossier](#)

Priority number(s): EP20180275174 20181107

Also published as: [DE102019129136 \(A1\)](#).

Abstract of EP3563896 (A1)

The present invention discloses devices and methods for attracting enhanced attention. Devices include: an input signal of a lacunar pulse train having characteristics of a pulse frequency of approximately four Hertz and a pulse-train fractal dimension of approximately one-half; and at least one controllable light source configured to be pulsatingly operated by the input signal; wherein a neural flame emitted from at least one controllable light source as a result of the lacunar pulse train is adapted to serve as a uniquely-identifiable signal beacon over potentially-competing attention sources by selectively triggering human or artificial anomaly-detection filters, thereby attracting enhanced attention.

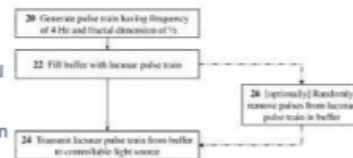


Figure 2

Openness

- Patent rights are conceived as a **quid pro quo**, granting an exclusive right to the inventor/investor in return for the disclosure of the invention to the benefit of society.
- The disclosure requirements indicate that the patent description should enable a person skilled in the art to rework the invention [art. 83 EPC]
- The rights granted are not always in proportion to the information disclosed and go beyond what is disclosed. The most prominent example in this area are software patents. AI patents are all the more problematic in this regard, as they use algorithms, and, in addition, employ training data, which are not revealed either.

Closing thoughts, or rather, questions...

- To what extent is the fierce discussion on **inventorship** relevant, since – even in cases where no inventor is mentioned – the applicant is a natural person, recouping investment when making use of AI ?

- To what extent do AI patents fulfill their function of providing a proportionate **balance** between
 - the rights and the scope of protection awarded to the inventor/investor, on the one hand, and
 - the knowledge disclosed, on the other hand?

Thank You

